



Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate	Certificate No.	011-7S2422 F
	Date of issue	05-09-2014

Company	Baltur SpA	Country	Italy
Brand (optional)	Baltur	Website	www.baltur.com
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Collector Type (flat plate / evacuate tubular / un-glazed)	Flat plate collector
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Integration in the roof possible ?	No
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Collector name	Aperture area (A _a) [m ²]	Gross length [mm]	Gross width [mm]	Gross height [mm]	Gross area (A _G) [m ²]	Power output per collector unit G = 1000 W/m ² T _m -T _a :				
						0 K	10 K	30 K	50 K	70 K
						[W]	[W]	[W]	[W]	[W]
Etasun 20	1.867	1 675	1 200	55	2.010	1 445	1 365	1 188	988	766
Etasun 25	2.348	2 090	1 200	45	2.508	1 817	1 717	1 494	1 243	964

Collector efficiency parameters related to aperture area (A_a)	η _{0a}	0.774	-
Type of fluid and flow rate see note 1	a _{1a}	4.145	W/(m ² K)
	a _{2a}	0.015	W/(m ² K ²)

Stagnation temperature - Weather conditions see note 2	t _{stg}	182.1	°C
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Effective thermal capacity	C _{eff} = C/A _a	5.23	kJ/(m ² K)
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Max. operation pressure - see note 3	p _{max}	600	kPa
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Incidence angle modifiers K _θ (θ)	G _{DIF} /G _{TOT}		θ _T / θ _L	50°	10°	20°	30°	40°	60°	70°
	min	max								
	G _{DIF} /G _{TOT} : min&max - while measuring	0.16	0.89	K _θ (θ _L)	0.00	0.00	0.00	0.00	0.00	0.00

Testing Laboratory	TÜV Energie und Umwelt GmbH
Website	www.eco-tuv.de
Test report id. number	21225826_EN_P_ETASUN20; 21225826_EN_R_ETASUN25
Date of test report	05-09-2014
Perf. test method	EN 12975-2 6.1.5 (indoor)

Comments of testing laboratory :

Note 1	Fluid	Water	Flow rate	0.026 kg/s per m ²	
Note 2	Irradiance, G_s=1000 W/m²				
Note 3	Ambient temperature, T_a=30 °C				



Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Certificate No.	011-7S2422 F
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Annual collector output kWh														
Collector name	Location and collector temperature (T _m)													
	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		
Etasun 20	2 131	1 418	846	1 679	1 076	605	1 159	711	395	1 259	759	412		
Etasun 25	2 680	1 784	1 064	2 111	1 354	761	1 458	895	497	1 584	954	519		

Collector mounting: Fixed or tracking Fixed; slope = latitude - 15° (rounded to nearest 5°)

Overview of locations				
Location	Latitude °	G _{tot} kWh/m ²	T _a °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 _{tot}	Annual total irradiation on collector plane	kWh/m ²
T _a	Mean annual ambient air temperature	°C
T _m	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_m). Detailed description with all equations used is available from the Solar Keymark web site (direct link: <http://www.estif.org/solarkeymark/annexb1.php>)

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