

Number	64480/02	Replaces	64480
Issued	31-08-2012	Valid until	31-08-2017
Report number	179791	Scope	EN 12975-1:2006 +A1:2010, EN 12975-2:2006, Solar Keymark Specific Scheme Rules V13.01

Kiwa hereby declares that the **thermal solar collector**, type

SolarCollector^{II}

supplied by **ATAG Verwarming Nederland B.V.**
Lichtenvoorde, The Netherlands

Is entitled to use the Solar Keymark label.

The compliance is based on examination to:
EN 12975-1:2006 +A1:2010, EN 12975-2:2006 and the
Specific Keymark Scheme Rules for Solar Thermal Products V13.01

A description of the test results is given in the appendix to this certificate.

Certificate

Kiwa N.V.
Sir W. Churchill-laan 273
Postbus 70
2280 AB RIJSWIJK
The Netherlands

www.kiwa.com

GASTEC



B. Meekma

Bouke Meekma
Kiwa



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Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence number	64480/02
	Date of issue	31-8-2012

Company holding the licence	ATAG Verwarming Nederland B.V.	Country	The Netherlands
Brand (optional)	ATAG	Website	www.atagverwarming.nl
Street, number	Galileistraat 27	E-mail	info@atagverwarming.nl
Postal Code	7131 PE	Tel.	31 544391777
City	Lichtenvoorde	Fax	31 544391703

Collector Type (flat plate / evacuate tubular / un-glazed)	Flat plate collector
Integration in the roof possible ?	Yes

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]
SolarCollectorII	2.28	2.118	1.181	94	2.50	1,952	1,863	1,656	1,412	1,128

Collector efficiency parameters related to <u>aperture area (A_a)</u> Type of fluid and flow rate see note 1	η_{0a}	0.856	-
	a_{1a}	3.688	W/(m ² K)
	a_{2a}	0.021	W/(m ² K ²)

Stagnation temperature - Weather conditions see note 2	t _{stg}	210	°C
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Effective thermal capacity	C _{eff} = C/A _a	5.84	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								
		0.1	0.2	K _θ (θ _T)	0.96	1.00	1.00	0.99	0.98	0.93
			K _θ (θ _L)	0.96	1.00	1.00	0.99	0.98	0.93	0.87

G_{DIF}/G_{TOT}: min&max - while measuring

Testing Laboratory	CENER, Kiwa Nederland BV
Website	www.cener.com
Test report id. number	30.1586 / 120300931
Date of test report	19-5-2011 / 28-8-2012
Perf. test method	EN 12975-2 6.1.5 (indoor)

Comments of testing laboratory :
Performance test performed by Kiwa

Note 1	Fluid	Water	Flow rate	0.020 kg/s per m ²		
Note 2	Irradiance, G _s =1000 W/m ² ; Ambient temperature , T _a =30 °C					
Note 3	Given by manufacturer					

Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence number	64480/02
	Issued	31-8-2012

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
SolarCollectorII	2,172	1,436	883	1,672	1,098	653	1,195	764	447	1,262	776	453

Collector mounting: Fixed or tracking No tracking; 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>)

Kiwa Nederland B.V., P.O. Box 137, 7300 AC Apeldoorn, The Netherlands	Datasheet version:
	VERSION 3.7, 2012.03.22
	Calculation program version:
	3.07, October 2011 (SP)